CLAIMS

1. A method of interference cancellation (IC) for a spread-spectrum code division multiple access (CDMA) receiver operating in a CDMA system having a plurality of users each employing a CDMA code, the receiver comprising the steps of

    (a) despreading the received spread spectrum signal;

    (b) performing a decision for an information symbol carried in the spread spectrum signal for each CDMA code;

    (c) obtaining an estimate of the channel medium for each path of each CDMA code;

    (d) using the information symbol decision for each CDMA code, the channel medium estimate and the time instant for each path, and the CDMA codes to provide a regenerated spread spectrum signal estimate by regenerating and summing the received signals for each CDMA code and each signal path;

    (e) using the information symbol decision for each CDMA code and the channel medium estimate for each signal path to provide an interference-free estimate for each despread signal path of each CDMA code;

    (f) despreading the regenerated signal estimate at every time instant corresponding to all identified paths signals for every CDMA code;

    (g) subtracting the despread regenerated signal estimate from the despread signal for each of the paths and for each of the CDMA codes;

(h) adding each interference-free estimate of the despread signal path to the subtraction result for the same despread signal path for each CDMA code; and

(i) performing a decision for the information symbol carried in the spread spectrum signal for each CDMA code.

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2. A method as defined in claim 1, wherein step (h) is performed before step (g).

3. A method as defined in claim 1, further comprising repeating steps (d) to (i) at least one more time.

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4. A method as defined in claim1, wherein the despread signal estimates in steps (e) and (f) are scaled by a weighting factor.

5. A method defined in claim 1, wherein the decisions in step (b) or (i) are made with a

15   Rake receiver.

6. A method defined in claim 1, wherein the decisions in step (b) are made with an equalizer.

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7. An interference cancellation circuit for use in a spread spectrum code division multiple access (CDMA) receiver, the interference cancellation circuit comprising:

a first despreader circuit for despreading a received spread spectrum signal;

a first decision circuit coupled to the despreader for performing a decision for an

5   information symbol carried in the spread spectrum signal for each CDMA code;

a channel estimation circuit coupled to the despreader circuit for obtaining an estimate of the channel medium for each path of the received spread spectrum signal;

a regeneration circuit coupled to the decision circuit and channel estimation circuit

10   for providing a regenerated spread spectrum signal estimate by regenerating and summing the received signals for each CDMA code and each signal path;

a multiplier coupled to the decision circuit and channel estimation unit, for providing an interference-free estimate for each despread signal path of each CDMA code;

15   a second despreader circuit coupled to the regeneration circuit, for despreading the regenerated signal estimate at every time instant corresponding to all identified signal paths for every CDMA code;

a subtractor coupled to the first and second despreader circuits for subtacting the despread regenerated signal estimate from the despread signal for each of the

20   signal paths and for each of the CDMA codes;

an adder coupled to the subtractor and multiplier for adding the estimate of the interference-free despread signal path to the output of the subtractor for the same despread signal path and for each CDMA code; and

a second decision circuit coupled to the adder for performing a decision for the
5   information signal carried in the spread spectrum signal for each CDMA code.

8. The interference cancellation circuit of claim 7, wherein the first decision circuit comprises an equalizer or Rake receiver.

10   9. The interference cancellation circuit of claim 8, wherein the second decision circuit comprises a Rake receiver.